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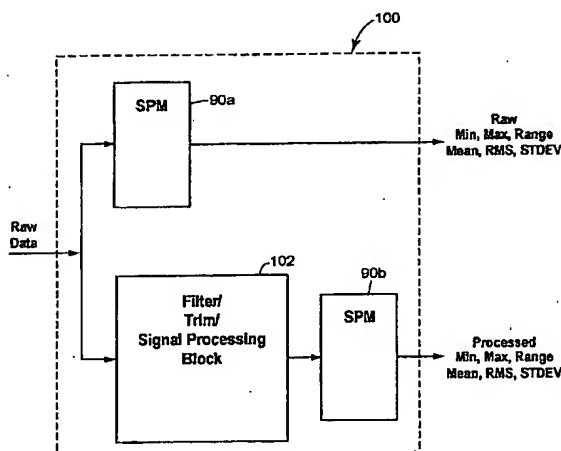
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(54) Title: **STATISTICAL PROCESSING METHODS USED IN ABNORMAL SITUATION DETECTION**



(57) Abstract: Detection of one or more abnormal situations is performed using various statistical measures, such as a mean, a median, a standard deviation, etc. of one or more process parameters or variable measurements made by statistical process monitoring blocks within a plant. This detection is enhanced in various cases by using specialized data filters and data processing techniques, which are designed to be computationally simple and therefore are able to be applied to data collected at a high sampling rate in a field device having limited processing power. The enhanced data or measurements may be used to provided better or more accurate statistical measures of the data, may be used to trim the data to remove outliers from this data, may be used to fit this data to non-linear functions, or may be use to quickly detect the occurrence of various abnormal situations within specific plant equipment, such as distillation columns and fluid catalytic crackers.